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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/586,792

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EXAMINER

HAN, KWANG S

ART UNIT

PAPER NUMBER

1727

NOTIFICATION DATE

DELIVERY MODE

07/21/2011

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/586,792	Applicant(s) YOSHIDA, NAOHIRO	
	Examiner Kwang Han	Art Unit 1727	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 April 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-22 and 24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-22 and 24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date. _____ | 6) <input type="checkbox"/> Other: _____ |

**FUEL CELL SYSTEM WITH PRESSURE REGULATOR AND METHOD FOR
DRIVING SAME**

Examiner: K. Han SN: 10/586,792 Art Unit: 1727 July 18, 2011

Detailed Action

1. The Applicant's amendment filed on April 27, 2011 was received. Claims 9 and 24 were amended.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Specification

3. The objection to the specification has been withdrawn in view of the Applicant's previous amendments to the title.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
5. Claims 9 and 24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicant's disclosure does not provide

explicit support for the newly added limitations of "the drive means consuming the power generated by the fuel cell".

Claim Rejections - 35 USC § 103

6. The claim rejection under 35 U.S.C. 103(a) as unpatentable over Kazuo in view of Iio on claims 9-22 and 24 is withdrawn, because independent claims 9 and 24 have been amended.

7. Claims 9-22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kazuo (JP 2002-352837, human translation) in view of Iio et al. (US 6663990) and Margiott et al. (US 6093500).

Regarding claims 9, 14, 18, and 24, Kazuo discloses a fuel cell system comprised of a fuel cell for generating power by circulating a fuel gas such as hydrogen [0001, 0002], a fuel gas supplying device (2), an ejector pump (drive means, 4) which realizes sufficient pumping effect (forcibly circulating) and stabilizes power generation [0070], a fuel gas supplying line (circulation route; L2; Figure 1), a control unit (21) for controlling a supply pressure control valve (3) [0016] that is outside of the circulation route (Figure 1) which adjusts the control valves to provide adjusted pressure and optimum gas flow rate to the fuel cell stack based on required gas quantity and measured pressure [0042] but does not explicitly teach the control means controlling a drive quantity of the drive means and the control means making up a deficiency while inhibiting a variation of the drive quantity or the drive means consuming power generated by the fuel cell.

lio teaches a fuel cell system which has a control unit (5, control means) that controls a hydrogen draw pump (12) in combination with a control valve (11, pressure regulating device) located in a hydrogen passage (Figure 9) to regulate the flow rate and pressure of the hydrogen gas in response to output signals (4:12-7:16) including the end of a purge cycle which makes up a deficiency of the fuel gas according to the required gas quantity regulating the pressure (to a preset operating pressure) of the fuel gas while inhibiting a variation (resetting the drawing power of the pump) of the drive quantity to allow for continued normal operation of the fuel cell after a purge sequence (5:10-28). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the control unit of Kazuo to control the pump and valves of the fuel cell system because lio recognizes it allows for the make up in the deficiency of a gas to continue normal operation of the fuel cell after a purge sequence.

Margiott teaches the loads applied to a fuel cell system can include auxiliary equipment such as pumps, fans, compressors, etc. in support of the fuel cell power supply system (5:53-65). It would have been obvious to one of ordinary skill in the art at the time of the invention to provide power to the auxiliary equipment from the fuel cell of Kazuo because Margiott recognizes parasitic loads in support of the fuel cell such as pumps are typically powered by the fuel cell.

Regarding claims 10-13, 16, 20, 21 and 22, limitations which are directed to a manner of operating the disclosed device (e.g. "according to an increase in a required gas quantity", "varied correspondingly to a variation", etc.), it is noted that neither the manner of operating a disclosed device nor material or article worked upon further limit

Art Unit: 1727

an apparatus claim. Said limitations do not differentiate apparatus claims from prior art. See MPEP § 2114 and 2115. Further, it has been held that process limitations do not have patentable weight in an apparatus claim. See *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969) that states “Expressions relating the apparatus to contents thereof and to an intended operation are of no significance in determining patentability of the apparatus claim.”

Regarding claim 15, Kazuo further discloses sensors (6, 7) determining the pressure (means for determining pressure regulation) [0039] and lio further discloses the control unit determining the drawing power of the pump (means for determining a drive characteristic; 5:10-28).

Regarding claim 17, Kazuo discloses the supply control valve equipped with a first actuator (5; Figure 1) for adjusting the opening in the control valve (3).

Regarding claim 19, Kazuo does not explicitly teach the fuel gas supply being a hydrogen tank.

lio teaches a hydrogen tank being a fuel gas supply source for the fuel cell system to allow for storage of hydrogen gas to be used within the fuel cell (7:17-26). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a hydrogen tank in the fuel cell system of Kazuo because lio recognizes a hydrogen tank allows for storage of hydrogen gas which can be fed to the fuel cells.

Response to Arguments

8. Applicant's arguments filed April 27, 2011 have been fully considered but they are not persuasive.

Applicant's principal arguments are:

- (a) Kazuo does not disclose the ejector pump is in operation when power is extracted from the fuel cell,*
- (b) lio disclose the hydrogen draw pump is located at the exhaust passage route and not in a circulation route.*

In response to Applicant's arguments, please consider the following comments:

- (a) as discussed in the rejection presented above Kazuo discloses sufficient pumping effect by the ejector pump which stabilizes the power generation at startup [0070] effectively teaching the pump to be in action during operation of the fuel cell, and
- (b) the Kazuo reference teaches the limitations regarding the placement of the drive means within the circulation route which is further modified by the teachings of lio to address the limitations regarding the control means as argued above. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact/Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kwang Han whose telephone number is (571) 270-5264. The examiner can normally be reached on Monday through Friday 8:00am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Barbara Gilliam can be reached on (571) 272-1330. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1727

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/K. H./
Examiner, Art Unit 1727

/Barbara L. Gilliam/
Supervisory Patent Examiner, Art Unit 1727